



**State of Louisiana
Department of Natural Resources
Coastal Engineering Division**

**2006/2007 Annual Inspection
Report**

for

**OAKS/AVERY CANALS
HYDROLOGIC RESTORATION
PROJECT**

State Project Number TV-13a
Priority Project List 6

May 1, 2007
Vermilion/Iberia Parishes

Prepared by:

Stan Aucoin, Engineering Tech.
LDNR/Coastal Engineering Division
Lafayette Field Office
635 Cajundome Blvd.

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I. Introduction

The Oaks/Avery Project consists of approximately 2,876 acres of brackish marsh and open water. It is located on the border of Iberia and Vermilion Parishes, approximately 12 miles south of Delcambre, LA. (See Appendix A).

The Oaks/Avery Canals Hydrologic Restoration Project was authorized by Section 303(a) of Title III Public Law 101-646, the Coastal Wetlands Planning Protection and Restoration Act (CWPPRA) enacted on November 29, 1990 as amended and approved on the sixth Priority Project List. The Oaks/Avery Project has a twenty –year (20 year) economic life, which began in October 2002.

II. Inspection Purpose and Procedures

The purpose of the annual inspection of the Oaks/Avery Canals Hydrologic Restoration Project (TV-13a) is to evaluate the constructed project features to identify any deficiencies and prepare a report detailing the condition of project features and recommended corrective actions needed. Should it be determined that corrective actions are needed, LDNR shall provide, in the report, a detailed cost estimate for engineering, design, supervision, inspection, and construction contingencies, and an assessment of the urgency of such repairs (O&M Plan, 2002). The annual inspection report also contains a summary of maintenance projects which were completed since completion of constructed project features and an estimated projected budget for the upcoming three (3) years for operation, maintenance and rehabilitation. The three (3) year projected operation and maintenance budget is shown in Appendix C. A summary of past operation and maintenance projects completed since completion of the Oaks/Avery Canals Project are outlined in Section IV.

An inspection of the Oaks/Avery Canals Hydrologic Restoration Project (TV-13a) was held on May 1, 2007 under partly cloudy skies and mild temperatures. In attendance were Stan Aucoin, Herbert Juneau, Melvin Guidry, and Garrett Broussard of LDNR. NRCS was represented by Dale Garber. Parties met at the Lafayette Field Office of CED and proceeded to the TV-13a project area. The annual inspection began at the rock revetment at the mouth of the Oaks Canal.

The field inspection included a complete visual inspection of the entire project site. Staff gauge readings, when available, and existing temporary benchmarks were used to determine approximate elevations of water, rock weirs, earthen embankments, steel bulkhead structures and other project features. Photographs were taken at each project feature (see Appendix B) and Field Inspection notes were completed in the field to record measurements and deficiencies (see Appendix D).

III. Project Description and History

This project consists of the following unrelated restorative components designed to address different land loss problems within the project area: protection of Vermilion Bay shoreline

with vegetative plantings; protection of GIWW bankline with rock dikes; stabilization of water level variability north of the GIWW.

The Vermilion Bay shoreline is subject to high energy wind driven waves due to the large fetch of Vermilion Bay. Most of the shoreline within the project area is “scalloped”, with sloped banks separated by more seaward points of land with cutbanks. Vegetative plantings provide protection for erosion impacted areas by stabilizing sediment with live root mass and dissipating wave energy with above-ground plant structure (Knutson 1977). The lead federal agency for the project, NRCS, determined that vegetation plantings, similar to those used for the effective TV-09 project (Thibodeaux 1998), are the preferred alternative to protect this shoreline (NRCS 1998).

The banks of the GIWW within the project boundary are subjected to erosion from boat wakes from heavy commercial traffic (Good et al. 1995). The emergent marsh and SAV behind the bank will be subject to the erosive action of boat wakes if the banks are not protected. Wake protection from marine traffic has been provided along sections of the GIWW by freestanding dike sections of riprap material placed approximately 25–30 ft from the existing “cut” bank. Approximately 1,200 ft of bankline has been protected on the south embankment in the area where Bayou Petite Anse exits Tigre Lagoon and enters Vermilion Bay. The narrow strip of land that currently separates Bayou Petite Anse from the GIWW continues to reduce in size due to the eroding banks of the GIWW. The remaining 6,300 ft of bankline stabilization is installed on the north bank of the GIWW immediately west of Oaks Canal. The absence of spoil bank material in this section of the GIWW exposes fragile marsh soils to the erosive wake action of passing marine vessels.

The section of the project area north of the GIWW is currently subject to increased effects of tidal action and frontal storm passage, and from water surges created by daily barge traffic in the GIWW. The scour erosion from rapid water movement through channels in the area may physically damage vegetation and cause excess water turbidity, which has been found to be an important factor limiting SAV growth (Korschgen et al. 1997). A low sill rock weir has been set 2 ft below marsh level, approximately 150 ft north of the opening of this area to the GIWW, to stabilize water levels and lessen the impact of the approximately 500 acres of this section of the project area that will be the hydrologic unit. An existing spoilbank from the weir south to the Intracoastal Canal has been refurbished to prevent the possibility of water flow bypassing the structure. To ensure the integrity of the hydrologic unit, a breach between the hydrologic unit and outside waterways has been plugged with a rock plug. Additionally, existing substandard sections of the hydrologic unit embankment south of the rock plug will be refurbished.

A low sill rock structure built at the convergence of the Oaks Canal and Vermilion Bay will significantly reduce the volume of water moving through the Oaks Canal.

The project has a twenty-year (20 year) economic life, which began in October 2002.

The principal project features include:

1 - Approximately 6,300 linear feet of rock breakwater on the northern bank of the Gulf Intracoastal Waterway (GIWW) beginning at the Oaks Canal entrance into the GIWW and heading westward.

2 - Approximately 1,200 linear feet of rock breakwater along the southern bank of the GIWW just NE of Tigre Lagoon.

3 - Approximately 34,000 smooth cord grass plants planted between the Oaks and Avery Canals along the northern bank of Vermilion Bay.

4-Approximately 650 linear feet of bankline stabilization at the southern end of Oaks Canal at it's convergence with Vermilion Bay.

5-Approximately 1,200 linear feet of spoilbank restoration at various locations north of the GIWW between the Union Oil Canal and Oaks Canal.

6-Approximately 130 linear feet of rock plug at a breach in the levee on the northern end of the project area.

7-A low sill sheet pile weir in the Cowpath Canal just north of the GIWW and east of Oaks Canal.

IV. Summary of Past Operation and Maintenance Projects

General Maintenance: Below is a summary of completed maintenance projects and operation tasks performed since October 2002, the construction completion date of the Oaks/Avery Canals Bayou Hydrologic Restoration Project.

No maintenance has been required on this project since construction was completed.

Structure Operations: There are no active operations associated with this project.

V. Inspection Results

Site 1—Rock breakwater/North bank

The dike is in excellent condition.. Approximately 60 linear feet on the eastern end at a barge slip continues to settle but is and in no need of any repairs. East and west tie-ins are stable. (Appendix B; photos 1-3)

Site 2—Rock paving at Oaks Canal

High tides concealed the area along the western bank paving where some rock had apparently slid into the channel. No worsening in this area was evident. The bank between the bay and

Bayou Hebert is still only about 6 feet wide and has not gotten any worse. No immediate maintenance required at this time. (Appendix B; photos 4-5)

Site 3—Cow path Structure

The structure is in excellent shape. Signage is stable. Wingwalls show no signs of any erosion. Three SS bolts are missing from pile cap and will eventually need to be replaced, probably by DNR personnel. The levee from the structure to the GIWW is stable. No maintenance required at this time. Landowners have installed what appears to be a boat lifting device on the western half of the structure, as well as channel iron to accept stoplogs. This will be investigated further by LDNR. (Appendix B; photos 6-9)

Site 4—Earthen closures

The closures are holding up well. Vegetation has been established. No need for any repairs. (Appendix B; photos 10-11)

Site 5—Rock plug

The plug is in excellent condition. No evidence of settling or vandalism. Tie-ins are stable. No need for any repairs. (Appendix B; photo 12)

Site 6—Rock breakwater/South bank

The dike is in immediate post construction condition and in no need of any repairs. (Appendix B; photo 13)

Site 7—Vegetation plantings

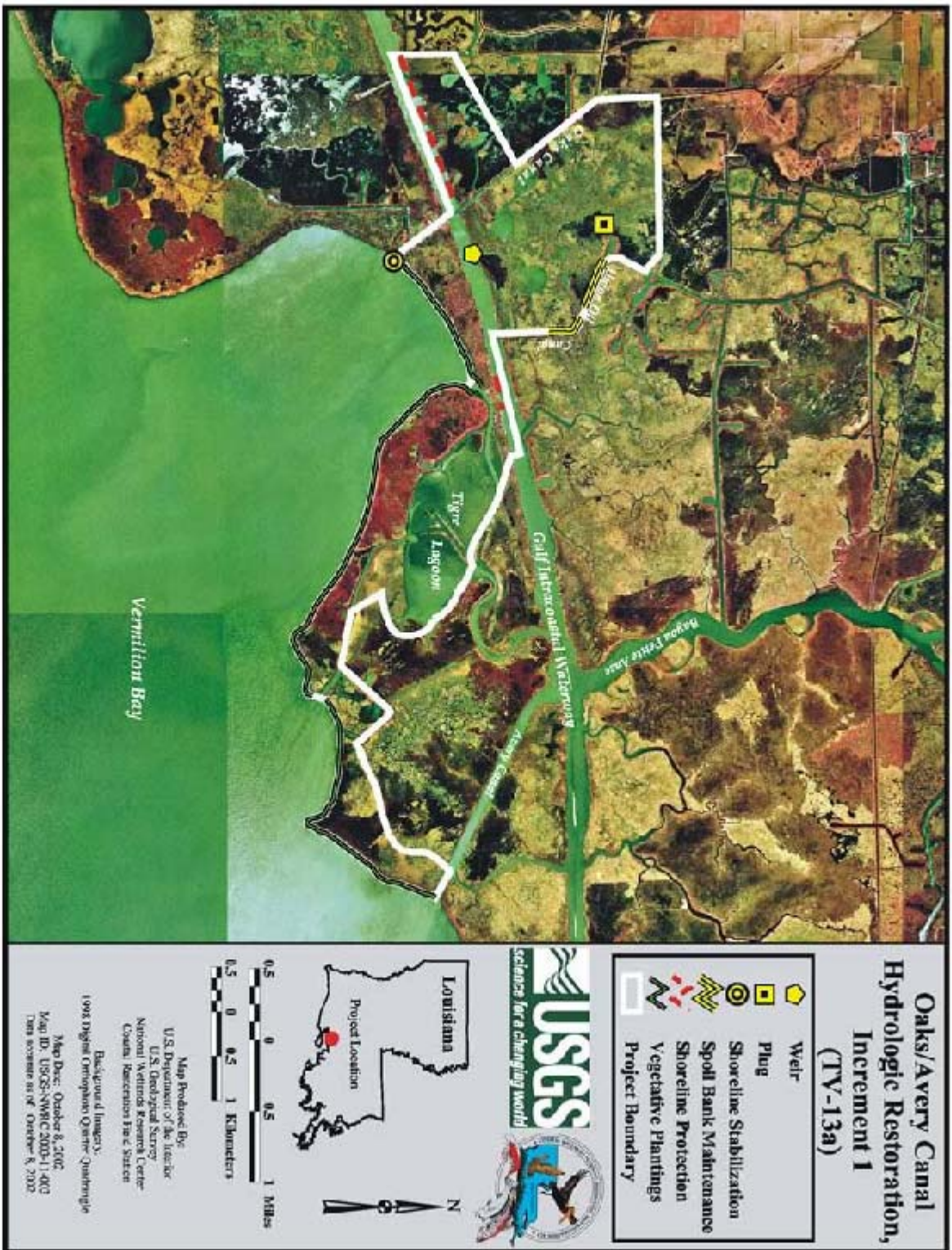
The shoreline plantings were not directly inspected on this trip due to time and wave constraints. They are, however, expected to be in similar condition as previous inspections. All vegetation in the area, including the vegetation behind the rock dikes, has rebounded from the effects of Hurricane Rita. (Appendix B; photo 14)

VI. Conclusions and Recommendations

Overall, the Oaks/Avery Canals Hydrologic Restoration Project is in good condition and functioning as designed. No immediate maintenance is required.

Appendix A

Project Features Map



Appendix B

Photographs



Photo 1— rock dike on north bank of GIWW; east tie in



Photo 2—settled rock on north bank of GIWW at barge slip



Photo 3-- rock dike on north bank of GIWW; west tie in



Photo 4—east bank of Oaks Canal



Photo 5—west bank of Oaks Canal



Photo 6—cow path structure



Photo 7—landowner installed channel iron



Photo 8—landowner installed boat lifting device



Photo 9—boat lifting device mounted to pile cap



Photo 10—earthen levee



Photo 11—earthen levee



Photo 12—rock plug



Photo 13—typical section of rock dike on south bank of GIWW

Appendix C

Three Year Budget Projection

Annual Inspection Report
OAKS/AVERY CANALS HYDROLOGIC RESTORATION
State Project No. TV-13a

OAKS-AVERY HYDROLOGIC RESTORATION/ TV13a / PPL 6
Three-Year Operations & Maintenance Budgets 07/01/2007 - 06/30/10

<u>Project Manager</u>	<u>O & M Manager</u>	<u>Federal Sponsor</u>	<u>Prepared By</u>
Herb Juneau	Herb Juneau	NRCS	Stan Aucoin

	2007/2008	2008/2009	2009/2010
Maintenance Inspection	\$ 5,407.00	\$ 5,570.00	\$ 5,737.00
Structure Operation			
Administration		\$ -	\$ -
Maintenance/Rehabilitation			

07/08 Description:

E&D	
Construction	
Construction Oversight	
Sub Total - Maint. And Rehab.	\$ -

08/09 Description:

E&D	\$ -
Construction	\$ -
Construction Oversight	\$ -
Sub Total - Maint. And Rehab.	\$ -

09/10 Description:

E&D	\$ -
Construction	\$ -
Construction Oversight	\$ -
Sub Total - Maint. And Rehab.	\$ -

	2007/2008	2008/2009	2009/2010
Total O&M Budgets	\$ 5,407.00	\$ 5,570.00	\$ 5,737.00

O & M Budget (3 yr Total)	\$ 16,714.00
Unexpended O & M Budget	\$ 276,198.59
Remaining O & M Budget (Projected)	\$ 259,484.59

Appendix D

Field Inspection Form

Annual Inspection Report
OAKS/AVERY CANALS HYDROLOGIC RESTORATION
State Project No. TV-13a

MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name: TV-13a Oaks/Avery Canal Hydrologic Restoration

Date of Inspection: May 1, 2007 Time:

Structure No. N/A

Inspector(s): Stan Aucoin, Herb Juneau, Mel Guidry, Garrett Broussard (LNDR)
Dale Garber (NRCS)

Structure Description: rock dike along northern bank of GIWW

Water Level

Type of Inspection: Annual

Weather Conditions: partly cloudy and mild

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead / Caps	N/A				
Steel Grating	N/A				
Stop Logs	N/A				
Hardware	N/A				
Timber Piles	N/A				
Timber Wales	N/A				
Galv. Pile Caps	N/A				
Vegetation	N/A				
Signage / Supports	N/A				
Rip Rap/dike	Excellent			1-3	Dike is excellent post construction condition. Approx. 60 LF on eastern end hit by barge continues to settle.
Eathern Embankment	N/A				

What are the conditions of the existing levees?
Are there any noticable breaches?
Settlement of rock plugs and rock weirs?
Position of stoplogs at the time of the inspection?
Are there any signs of vandalism?

Annual Inspection Report
OAKS/AVERY CANALS HYDROLOGIC RESTORATION
State Project No. TV-13a

MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name: TV-13a Oaks/Avery Canal Hydrologic Restoration

Date of Inspection: May 1, 2007 Time:

Structure No. N/A

Inspector(s): Stan Aucoin, Herb Juneau, Mel Guidry, Garrett Broussard (LNDR)
Dale Garber (NRCS)

Structure Description: rock paving at Oaks Canal

Water Level

Type of Inspection: Annual

Weather Conditions: partly cloudy and mild

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead / Caps	N/A				
Steel Grating	N/A				
Stop Logs	N/A				
Hardware	N/A				
Timber Piles	N/A				
Timber Wales	N/A				
Galv. Pile Caps	N/A				
Vegetation	N/A				
Signage / Supports	N/A				
Rip Rap (fill)	Excellent			4 & 5	Rock in excellent condition
Eathern Embankment	N/A				

What are the conditions of the existing levees?
Are there any noticable breaches?
Settlement of rock plugs and rock weirs?
Position of stoplogs at the time of the inspection?
Are there any signs of vandalism?

Annual Inspection Report
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State Project No. TV-13a

MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name: TV-13a Oaks/Avery Canal Hydrologic Restoration

Date of Inspection: May 1, 2007 Time:

Structure No. Cowpath Structure

Inspector(s): Stan Aucoin, Herb Juneau, Mel Guidry, Garrett Broussard (LNDR)
Dale Garber (NRCS)

Structure Description: Fixed crest weir

Water Level

Type of Inspection: Annual

Weather Conditions: partly cloudy and mild

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead / Caps	Excellent			7	
Steel Grating	N/A				
Stop Logs	N/A				
Hardware	Good			8 & 9	Three SS bolts missing from pile cap. Not critical. Landowner installed boat lifting device.
Timber Piles	N/A				
Timber Wales	N/A				
Galv. Pile Caps	Excellent			9	
Vegetation	N/A				
Signage / Supports	Excellent			6	
Rip Rap (fill)	N/A				
Eathem Embankment	Excellent				

What are the conditions of the existing levees?
Are there any noticable breaches?
Settlement of rock plugs and rock weirs?
Position of stoplogs at the time of the inspection?
Are there any signs of vandalism?

Annual Inspection Report
OAKS/AVERY CANALS HYDROLOGIC RESTORATION
State Project No. TV-13a

MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name: TV-13a Oaks/Avery Canal Hydrologic Restoration

Date of Inspection: May 1, 2007 Time:

Structure No. N/A

Inspector(s): Stan Aucoin, Herb Juneau, Mel Guidry, Garrett Broussard (LNDR)
Dale Garber (NRCS)

Structure Description: Earthen closures

Water Level

Type of Inspection: Annual

Weather Conditions: partly cloudy and mild

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead / Caps	N/A				
Steel Grating	N/A				
Stop Logs	N/A				
Hardware	N/A				
Timber Piles	N/A				
Timber Wales	N/A				
Galv. Pile Caps	N/A				
Vegetation	N/A				
Signage / Supports	N/A				
Rip Rap (fill)	N/A				
Earth Embankment	Excellent			10-11	

What are the conditions of the existing levees?
Are there any noticable breaches?
Settlement of rock plugs and rock weirs?
Position of stoplogs at the time of the inspection?
Are there any signs of vandalism?

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OAKS/AVERY CANALS HYDROLOGIC RESTORATION
State Project No. TV-13a

MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name: TV-13a Oaks/Avery Canal Hydrologic Restoration

Date of Inspection: May 1, 2007 Time:

Structure No. N/A

Inspector(s): Stan Aucoin, Herb Juneau, Mel Guidry, Garrett Broussard (LND)
Dale Garber (NRCS)

Structure Description: Rock plug

Water Level

Type of Inspection: Annual

Weather Conditions: partly cloudy and mild

Item	Condition	Physical Damage	Corrosion	Photo #	
Steel Bulkhead / Caps	N/A				
Steel Grating	N/A				
Stop Logs	N/A				
Hardware	N/A				
Timber Piles	N/A				
Timber Wales	N/A				
Galv. Pile Caps	N/A				
Vegetation	N/A				
Signage / Supports	N/A				
Rip Rap (fill)	Excellent			12	
Eathem Embankment	N/A				

What are the conditions of the existing levees?
Are there any noticable breaches?
Settlement of rock plugs and rock weirs?
Position of stoplogs at the time of the inspection?
Are there any signs of vandalism?

Annual Inspection Report
OAKS/AVERY CANALS HYDROLOGIC RESTORATION
State Project No. TV-13a

MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name: TV-13a Oaks/Avery Canal Hydrologic Restoration

Date of Inspection: May 1, 2007 Time:

Structure No. N/A

Inspector(s): Stan Aucoin, Herb Juneau, Mel Guidry, Garrett Broussard (LNDR)
Dale Garber (NRCS)

Structure Description: Rock breakwater along southern bank of GIWW

Water Level

Type of Inspection: Annual

Weather Conditions: partly cloudy and mild

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead / Caps	N/A				
Steel Grating	N/A				
Stop Logs	N/A				
Hardware	N/A				
Timber Piles	N/A				
Timber Wales	N/A				
Galv. Pile Caps	N/A				
Vegetation	N/A				
Signage / Supports	N/A				
Rip Rap (fill)	Excellent			13	
Eathem Embankment	N/A				

What are the conditions of the existing levees?
Are there any noticable breaches?
Settlement of rock plugs and rock weirs?
Position of stoplogs at the time of the inspection?
Are there any signs of vandalism?

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OAKS/AVERY CANALS HYDROLOGIC RESTORATION
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MAINTENANCE INSPECTION REPORT CHECK SHEET

Project No. / Name: TV-13a Oaks/Avery Canal Hydrologic Restoration

Date of Inspection: May 1, 2007 Time:

Structure No. N/A

Inspector(s): Stan Aucoin, Herb Juneau, Mel Guidry, Garrett Broussard (LNDR)
Dale Garber (NRCS)

Structure Description: Shoreline vegetation

Water Level

Type of Inspection: Annual

Weather Conditions: partly cloudy and mild

Item	Condition	Physical Damage	Corrosion	Photo #	Observations and Remarks
Steel Bulkhead / Caps	N/A				
Steel Grating	N/A				
Stop Logs	N/A				
Hardware	N/A				
Timber Piles	N/A				
Timber Wales	N/A				
Galv. Pile Caps	N/A				
Vegetation	Good			14	
Signage / Supports	N/A				
Rip Rap (fill)	N/A				
Earthen Embankment	N/A				

What are the conditions of the existing levees?
Are there any noticeable breaches?
Settlement of rock plugs and rock weirs?
Position of stoplogs at the time of the inspection?
Are there any signs of vandalism?

Appendix E

Locations to be Monitored